



Instruction Sheet

Model SB1310

High Precision 9" Lathe Chuck



⚠️ WARNING

Chucks are heavy! Get assistance when installing or removing the chuck from the lathe. Wear heavy duty leather boots for foot and toe protection, and keep hands and fingers away from all pinch points. Ignoring this warning can lead to a severe crushing injury or finger amputation!



Specifications

- OD Clamping Range .043"-8.66" (11-220mm)
- ID Clamping Range ..2.75"-8.27" (70-210mm)
- Outer Diameter9.17" (233mm)
- Maximum Chuck Key Torque101 ft/lbs*
- Maximum Jaw Gripping Force 6744 lbs*
- Maximum Speed2000 RPM
- Two-Piece Hardened Steel Jaws Yes
- Plain Back Mounting Yes
- Jaw Mounting Cap Screw Torque79 ft/lbs
- Grease Fitting Lubricated Yes
- Cast-Iron Construction Yes
- Chuck Weight..... 45 lbs
- Origin..... Taiwan

* Maximum handle torque and gripping force is given at full jaw and scroll gear engagement. If jaw and scroll gear are partially engaged, clamping force and gripping force is reduced.

If you need help with your new item, contact us at: (360) 734-1540 • FAX: (360) 676-1075

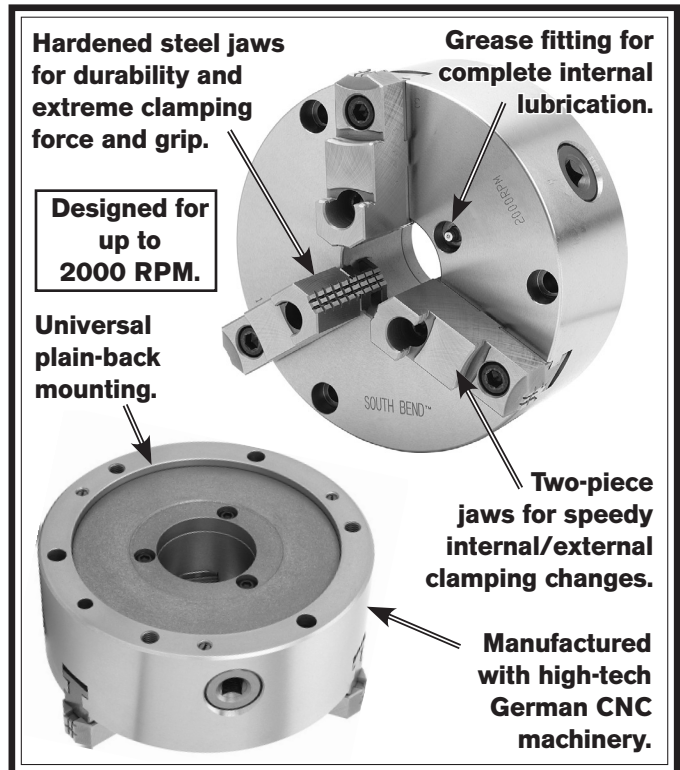


Figure 1. Features.

Installation

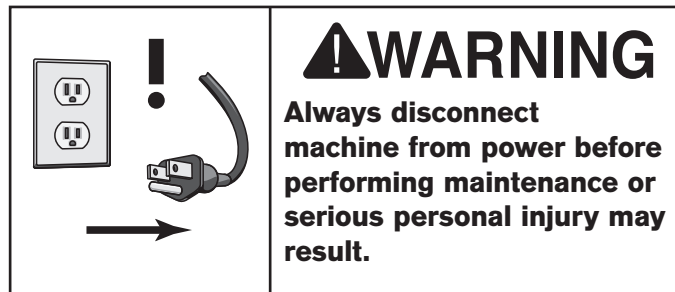
1. UNPLUG THE MACHINE FROM POWER!
2. Mount the back plate on the spindle.
3. Accurately measure the inside of the back relief bore on the chuck. This dimension is critical and should be ± 0.001 ".
4. Face the back plate to true it. Make passes across the face until its entire surface has been cut.
5. Turn a shoulder into the face $\frac{1}{8}$ " deep and 0.001" to 0.002" larger than the back relief bore diameter. Remember that this is a press fit. Chamfer the corner a small amount to prevent any burrs when installing.

6. Set the chuck on the back plate, aligning the shoulder with the relief bore. Use a transfer punch to mark the back plate. If a transfer punch is not available, a drill bit of the same size as the mounting holes in the chuck can be used. Lightly tap on the bit, rotate it 90° and tap it again.
 7. Remove the chuck from the back plate and center punch the marks. Drill and tap the holes for M12-1.75 threads.
 8. Remove the back plate from the lathe, and place it in to a freezer for 30 minutes, and place the chuck in an oven at 100° F. for the same amount of time.
 9. Put on insulated leather gloves and place the chuck on the back plate. Line up the mounting holes and thread in the cap screws supplied.
 10. Snug the first M12-1.75 cap screw, then alternate the cap screws across the chuck until you reach a final torque of 79 ft/lbs. Alternating the tightening process insures the chuck will be pressed on straight. This step should be repeated until the back plate fits snugly against the chuck. If the chuck fits loosely on the back plate, or is crooked on the shoulder, it will be necessary to recut the back plate face and shoulder again. If you are also installing the chuck by threading the M12-1.75 hex bolts into the chuck from the back side of the mounting plate, repeat **Step 9** on these bolts, but torque them to 43.4 ft/lbs.
- **Secure Clamping:** A thrown workpiece may cause severe injury or even death. When swapping the chuck jaw positions, use a torque wrench to re-torque the M12-1.75 jaw mounting cap screws to 79 ft/lbs. When clamping a workpiece, maximum gripping force is attained at full jaw and scroll gear engagement. If jaw and scroll gear are partially engaged, clamping force is reduced.
 - **Speed Rates:** Operating the lathe where maximum chuck speed is exceeded, or at too high of a speed for an unbalanced workpiece, can cause the workpiece to be thrown from the chuck. Always use the appropriate feed and speed rates. A thrown workpiece may cause severe injury or even death.
 - **Large Chucks:** Large chucks are very heavy and difficult to grasp, which can lead to crushed fingers or hands if mishandled. Get assistance when installing or removing large chucks to reduce this risk. Protect your hands and the precision ground ways by using a chuck cradle or piece of plywood over the ways of the lathe when servicing chucks.
 - **Safe Clearances:** Often chuck jaws will protrude past the diameter of the chuck and can contact a coolant nozzle, tooling, tool post, or saddle. Before starting the spindle, make sure the workpiece and the chuck jaws have adequate clearance by rotating it through its entire range of motion by hand.
 - **Stopping Lathe By Hand:** Stopping the spindle by putting your hand on the workpiece or chuck creates an extreme risk of entanglement, impact, crushing, friction, or cutting hazards. Never attempt to slow or stop the lathe chuck by using your hand. Allow the spindle to come to a stop on its own or use the brake (if equipped).
 - **Long Stock Safety:** Long stock can whip violently if not properly supported, causing serious impact injury and damage to the lathe. Reduce this risk by supporting any stock that extends from the chuck/headstock more than three times its own diameter. Always turn long stock at slow speeds.

Operation and Safety

- **Chuck Key Safety:** A chuck key left in the chuck can become a dangerous projectile when the spindle is started. Always remove the chuck key after using it. Develop a habit of not taking your hand off of a chuck key unless it is away from the machine.
- **Disconnect Power:** Disconnect the lathe from power before installing and removing the chuck or doing any maintenance or adjustments. Accidental lathe startup can cause severe injury or death.

Care & Maintenance



For optimum performance from your chuck, follow the maintenance schedule below, and never hammer on the chuck, jaws, or a workpiece clamped in the chuck. Never subject the chuck to abrasives, flame, or water.

Daily:

- Check/correct loose mounting bolts.
- Keep the chuck clean and oiled.
- Use a vacuum, rag, or brush to clean the chuck after use. Never use air pressure to clean chips away from a chuck.
- Avoid leaving the chuck clamped on a workpiece, unload the chuck jaws daily.
- Make sure the chuck key is removed from the chuck when not using the key.

If the chuck ever becomes stiff to operate, it may have been contaminated with metal chips or abrasives from neglect or poor service practices. The chuck must be disassembled, cleaned, and re-lubricated.

To disassemble the chuck for a full cleaning and lubrication service:

1. UNPLUG THE MACHINE FROM POWER!
2. Mark the chuck and the mounting plate where they mate to ensure that when reassembled both halves line up. Next, unbolt the chuck and separate both halves.
3. Insert and rotate the chuck key counterclockwise until the scroll-gear has released all three jaws.
4. Using a basic set of metric hex wrenches and a #1 standard screwdriver, start at #1 and disassemble the chuck in the sequence shown in **Figure 2**.

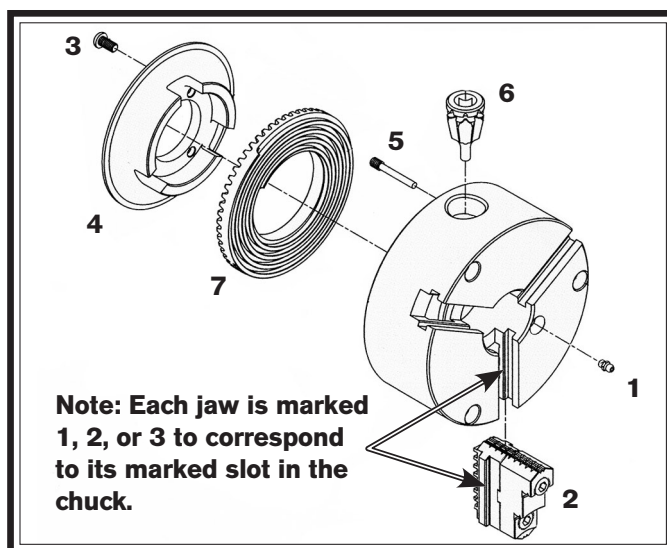


Figure 2. Chuck sequence of disassembly.

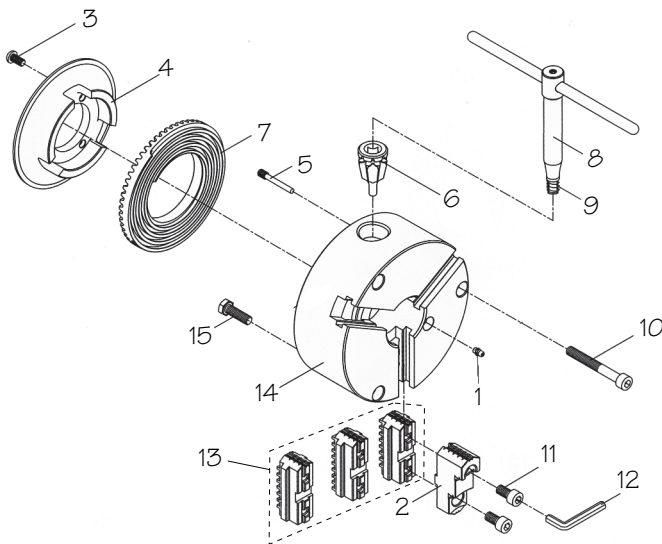
5. Using mineral spirits, clean and dry all components. Inspect all bores, teeth, pins, and mating surfaces for wear, burrs, galling, rust, or cracks.
6. Without changing the dimension of any part, use a wire brush, emery cloth, or dressing stones, to remove all rust, burrs, and any high spots caused by galling.
7. Coat all parts with any automotive NLGI #2 grease, and carefully reassemble the chuck in the reverse order shown in **Figure 2**.
8. Rotate the chuck key clockwise until you see the tip of the scroll-gear lead thread just begin to enter jaw guide #1.
9. Insert jaw #1 into jaw guide #1, and hold the jaw against the scroll-gear.
10. Rotate the chuck key clockwise one turn to engage the tip of the scroll-gear lead thread into the jaw. Pull the jaw; it should be locked into the jaw guide.
11. Install the other jaws in the same manner, and install a new grease fitting.
12. Line up the timing mark on the chuck and the mounting plate, and fasten both halves by tightening and torquing the fasteners as outlined in **Step 9 in Chuck Installation**.

Troubleshooting

If you need replacement parts, or if you are unsure how to do any of the solutions given here, feel free to call us at (360) 734-1540.

Symptom	Possible Cause	Possible Solution
The chuck has hard spots or binds completely.	<ol style="list-style-type: none"> 1. Jaw is in wrong position. 2. Lack of lubrication, rust, burr, or metal shavings inside of chuck. 3. Broken tooth on the pinion or the scroll gear. 	<ol style="list-style-type: none"> 1. Reinstall jaws in correct order and position on scroll gear. 2. Disassemble, de-burr, clean, and lubricate chuck. 3. Disassemble and rebuild chuck.
The workpiece slips in the jaws.	<ol style="list-style-type: none"> 1. Incorrect jaw or workpiece clamping position. 2. Insufficient pinion and scroll gear torque. 3. Cutting overload. 4. Chuck is binding before full clamping is achieved. 	<ol style="list-style-type: none"> 1. Reposition jaws and workpiece for maximum scroll gear and jaw engagement is achieved. 2. Tighten chuck key to 101 ft/lbs. 3. Reduce cutting depth or feed rate. 4. Disassemble and service/rebuild chuck.
Clamping accuracy is poor.	<ol style="list-style-type: none"> 1. Workpiece improperly clamped or jaw is loose or incorrectly seated. 2. Chuck loose, mounting is off center, or it is improperly seated. 	<ol style="list-style-type: none"> 1. Remove jaws, clean, de-burr, and reinstall with jaw mounting caps crews torqued to 79 ft/lbs. 2. Remove chuck, clean and de-burr mounting, and reinstall, or machine a new mounting plate.

Parts Diagram



Parts List

REF	PART #	DESCRIPTION
1	PSB1310001	GREASE FITTING
2	PSB1310002	TOP JAW
3	PCAP115M	BUTTON HD CAP SCR M6-1 X 16
4	PSB1310004	BACK COVER
5	PSB1310005	LOCK PIN
6	PSB1310006	PINION
7	PSB1310007	SCROLL GEAR
8	PSB1310008	CHUCK KEY W/SPRING
9	PSB1310009	COMPRESSION SPRING
10	PSB1310010	CAP SCREW M12-1.75 X 90 BLK C12.9
11	PSB1310011	CAP SCREW M12-1.75 X 25 BLK C12.9
12	PAW10M	HEX WRENCH 10MM
13	PSB1310013	BOTTOM JAW SET OF 3
14	PSB1310014	CHUCK BODY
15	PSB1310015	HEX BOLT M12-1.75 X 40 BLK C12.9

Please Note: We included this breakdown for service purposes only. Since many of the parts shown are machined to each individual chuck, they are not available as replacement items.

Copyright © January, 2010 By South Bend Lathe Co.
WARNING: No portion of this manual may be reproduced in any shape or form without the written approval of South Bend Lathe Co.
 #CR12486 Printed in Taiwan.
www.southbendlathe.com